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The Public Health Journal

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CANADIAN PUBLIC HEALTH ASSOCIATION

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Some of the Great Contributions to Public Health

GEORGE D. PORTER, M.B.

ON behalf of the Canadian Public Health Association I wish to thank you all for the very cordial reception which you have extended to us while in the splendid city of Winnipeg. The welcome of the Provincial and City authorities and also that of the Health League has been such a generous one that it will never be forgotten.

It is not my purpose on the present occasion to enlarge upon the work of our Association, now in its seventeenth year of activity, for during its sessions the various papers and addresses upon different health problems, including scientific, educational and administrative phases, will indicate in a general way what we are endeavouring to accomplish. This is a work which may be summed up by saying that we, a Dominion-wide group of official and other health workers, are all striving towards the prevention of disease and towards the good health of the community at large.

I should prefer, this evening, to review very briefly and in but a general way some of the great contributions to public health since early times, for it will be seen that the history of public health, while closely related to the history of medicine, is not always one and the same thing.

As far back as history records, dark clouds of misery and suffering, due to the prevalence of illness and disease, have overhung the human race. In primitive times it was believed that these afflictions were due to evil spirits and very logical methods of contending against them were taken. Either sacrifices were made to appease these evil spirits or they resorted to weird incantations, beating tom-toms, brandishing weapons and shouting wildly to frighten them away. Then again charms were frequently worn to ward off disease, a practice which has not been entirely discarded even in our own midst at the present time.

To the Jewish race belongs the credit for first isolating the sick from the well and for their attempt at disinfection by cleansing or burning the

Presidential Address delivered at the 17th Annual Meeting of the Canadian Public Health Association, Winnipeg, October 11, 1928.

garments of those afflicted with leprosy. They also laid down certain laws on personal hygiene, but as Sudhoff has pointed out, the greatest contribution of the Jewish race to public health was the institution of the day of rest, a very important factor in a nation's health, just as rest is an essential in the health of any individual.

It was not until the Golden Age of the Greeks, however, that a rainbow of hope began to appear in the clouded sky. For the first time in history the belief that disease was due to supernatural causes gave place to the view that it was due to natural causes. Then began the study of nature, of the patient and his symptoms and, as far as possible, of the study of disease as well. Personal hygiene reached its highest plane at this time, for the aim of the Greek teaching was the harmonious development of all the faculties of the body and of the mind.

The Romans added much in the way of sanitation. They paid great attention to drainage, town planning, the purity of water supplies and the purity of grain.

Then come the middle ages or mediaeval times. This long period has been called by many the dark ages, but if the Jews made their contribution to hygiene, the Greeks to medicine and the Romans to sanitation, the Christians of mediaeval times made their important contribution to public health as well. It was in early mediaeval times that the first and the greatest medical college in Europe was started at Salerno, where it stood like a beacon light for hundreds of years, lasting in fact until the time of Napoleon.

Naturally little progress could be made against disease without a definite knowledge of its cause and of its mode of spread, and so the rainbow of hope was hidden behind very black clouds of disease during these times. The scourges of leprosy, cholera, smallpox and the plague played terrible havoc in Europe during the Middle Ages. To this period, however, belongs the credit of first instituting quarantine against ships, and also on the land, in an effort to combat the plague. The wiping out of leprosy in Europe was also accomplished by segregation and care, and while hospitals had already been instituted, they were brought, for those times, to a high standard. Finally, to the Christians of this period should be given credit for the beginning of nursing and social service so essential for alleviating suffering and assisting in the control of disease. The deaconesses and nursing sisters of the church in mediaeval times, attached either to hospitals or to convents, were the precursors of our public health nurses of to-day.

While the Renaissance with its marvellous achievements in art, in literature and in science added much to the history of medicine, with such names as Vesalius, Harvey, Paracelsus and Paré outstanding, yet it made no contribution of importance towards public health.

The first in the field of preventive medicine was Edward Jenner, who in 1798 made known to the world his method of vaccination against smallpox.

This discovery has been the means of saving many lives. The procedure is now improved by modern methods both in the preparation of vaccine and in the technique of vaccination, thus removing the old risks of infection and other complications. While often causing sore arms and occasional malaise, especially in adults, vaccination will assuredly wipe out smallpox wherever it is thoroughly carried out.

Jenner's great work, however, went no further than that of vaccination and we have to wait until the time of Louis Pasteur to usher in the modern period of preventive medicine. His investigations in fermentation in 1857 led to the discovery that communicable diseases are caused by tiny organisms called bacteria and that for each specific disease there is a specific organism. Further discoveries regarding the methods of their transference from one person to another rapidly followed together with measures for their control. The prevention of hydrophobia, typhoid fever, tetanus and diphtheria by inoculation are some of these. The prevention of blood poisoning following wounds and operations is due to Lord Lister's antiseptic methods, followed later by modern methods of asepsis, and these life-saving measures are all based upon Pasteur's discoveries. The third great name which must always be associated with these is that of Robert Koch, the founder of bacteriology, and who is best known to the world by his discovery of the tubercle bacillus. In 1870, when Winnipeg was a mere trading post, the work of these three benefactors to humanity was in its infancy, and in the intervening years the growth of preventive medicine which they initiated has been as, comparatively, great and as rapid as has been the growth of the splendid city of Winnipeg.

Here the rainbow of hope takes on a new lustre. Its colours stand out more clearly. Various races and countries have contributed their share—the Jews, the Greeks, the Romans, the Christians—and numerous modern scientists throughout the civilized world, not forgetting the contribution of our own Canadian, Dr. Banting, in his discovery of Insulin.

You all know the rainbow's colours—the red, the orange and yellow, the green and blue, the indigo and the violet. Let them represent all the workers in the healing art—those working in physiology, chemistry and biology, in medicine, obstetrics, surgery and dentistry. They all blend into one. But we know to-day that there are other rays, the invisible ones, called the ultra-violet rays, the most beneficial ones of all. These rays may represent for us to-day the rays called "public health" or preventive rays. Many dark clouds of disease and suffering have been dispelled by them.

We can see the work of the healers, the physician and the surgeon, but the work of prevention is never seen and we can never compute the benefits conferred. We see a child suffering from diphtheria and after receiving antitoxin and other medical care recover its health. It is dramatic. But when a healthy child receives a little injection of toxoid to prevent this disease, we fail to realize its benefits, as there has been no visible change whatever in the child's condition. In the same way, when we see a person down with

typhoid fever, and, after proper medical care and much nursing gradually recover, we are grateful, but when we prevent this disease by chlorinating the water, pasteurizing the milk or inoculating our men, we fail to realize the benefits conferred, for, as unseen rays of light, they prove effective, but not in a visible or dramatic way.

To the layman and to the voluntary workers, public health owes much. It was Sir William Chadwick, a layman, who fathered the great Public Health Act in England in 1848. The prevention of tuberculosis offers a striking example of the value of co-operation in combatting certain diseases. Tuberculosis, while a medical disease, is, as Osler pointed out, a social one as well, and for the past twenty years the medical profession, the governments and the public generally have co-operated in fighting against it with the result that it now takes a forty per cent smaller death rate than it did before. This holds true in Canada as well as in other countries where like efforts have been made against this insidious disease.

It is the same with public health in general. If we are to derive the greatest benefits from the discoveries of our research workers in laboratories, in hospitals and elsewhere, we must have the heartiest co-operation of a wise government, well trained health officials and an intelligent public to apply them.

We know that the ultra-violet rays do not penetrate through ordinary glass. There should be no obstruction to their entrance. It is the same with public health. If we allow the rays of hygiene and preventive medicine to penetrate freely into our towns and cities and into our homes, we may hopefully look for an abundance of good health and for longer lives, for our Canadian people.

Safeguarding the Milk Supply

A. E. BERRY, C.E., PH.D.

Director, Sanitary Engineering Division, Ontario Dept. of Health

NO lengthy discourse seems necessary to show the food value of milk and its acknowledged place in the human diet, particularly of the growing child. Numerous investigations, including recent ones, have strengthened and confirmed this viewpoint. Unfortunately, however, there is no food which requires such close supervision, and it is doubtful if there is any similar product which, in general, is so subject to unsanitary methods. Health officials are frequently in the position of having to refuse to recommend the use of milk because it has been so poorly handled and is neither clean nor safe. This is an unfortunate condition, and if advantage is to be taken of its superior value as a food adequate safeguards must be employed. A health board can find little justification for closing private wells until they can offer a municipal water supply which is not only safe but palatable and attractive as well. The same holds for a milk supply, and until a safe, clean milk is available it is difficult to advocate its extensive use. The necessary safeguards for a product of such potentialities require a well-equipped organization, and eternal vigilance on the part of those responsible for its supervision. Many of the devices, which in the past have been regarded as adequate, have upon more thorough investigation proven to be very defective.

An appreciation of what control measures and safeguards are possible calls for a review of the legislation under which this supervision is made possible. Authority for the control of domestic milk supplies in Ontario is provided by the Milk and Cream Act of 1927. This Act is for the most part enabling legislation, and places the entire responsibility for municipal milk supplies in the hands of the municipalities. A municipality may pass by-laws regulating the production, sale, handling and various other features in connection with the local milk supplies. These by-laws are then submitted for approval to the Minister of Agriculture before becoming effective. Milk control and supervision is therefore not under the Department of Health. In this respect it is materially different from municipal water supplies where the Provincial Department of Health has very rigid control. Consequently, under the present legislation, the activities of the Department in respect to milk control must be directed chiefly towards furnishing advice to milk dealers and municipal authorities.

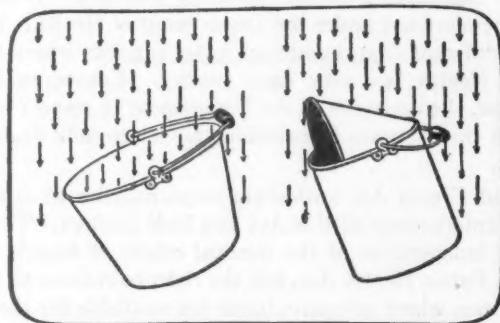
The Milk and Cream Act authorizes municipalities to appoint milk inspectors for the enforcement of this Act and local by-laws. These inspectors may be entirely independent of the medical officer of health, although the latter, under the Public Health Act, has the right to enforce all milk by-laws. In the larger centres where adequate funds are available for the employment

of well-trained milk inspectors the provisions in this Act work to advantage. In the smaller municipalities, and unfortunately in the great majority of cases, little consideration is given to the problem; the inspectors are only part time officials; they have no opportunity to receive a training; they are inadequately paid, and little can be expected. The part the local inspector must play in this work will always be of paramount importance, and consequently it is most essential that he be given every support and opportunity to familiarize himself with the latest information and most approved methods.

LOCAL BY-LAWS

Inasmuch as the Milk and Cream Act authorizes municipalities to pass milk by-laws this should be the first step towards the control of the milk supply. Such a by-law is necessary to create authority and to set standards. Without it there can be little, if any, supervision. It is obvious, on the other hand, that a good by-law is useless unless it is enforced, and this enforcement cannot be regarded as merely a police duty. The duty of the inspector is primarily that of an instructor supported by suitable legislation to enable him to deal with those situations which require more than persuasion. He should be able to advise the dairyman how to overcome his difficulties, and to point out the reason for such failures as high counts. Local by-laws should contain the essential requirements, including licensing of all producers and distributors and such other features as may be necessary for protection of the milk consumer. A by-law similar to Schedule B of the Public Health Act would seem to have a place in milk legislation. Such an Act would then be in force in all municipalities until amended.

The question of safeguarding a milk supply is one which involves two problems, viz., cleanliness of the product and safety against the spread of infectious organisms. Generally the idea of protection includes safety from such diseases as bovine tuberculosis and typhoid. Cleanliness, on the other hand, has been of secondary consideration. This is unfortunate and any control measures must unquestionably aim at the production of a clean milk.



The small-top pail keeps out dirt.

It is not only sufficient to deliver a product from which the visible dirt has been removed, but it must be so produced and handled as to exclude this unnecessary contamination. A pasteurized milk requires just as much care in respect to cleanliness as one which is to be used in the raw state. When it is more generally realized that dirt and so-called harmless bacteria, when present in sufficient quantity, may prove very injurious, greater attention will be given to the problem of clean production and handling.

PASTEURIZATION VS. TUBERCULIN TESTING

In conjunction with cleanliness of milk safety is of the greatest importance. To ensure a product which will be entirely free from pathogenic infections is the chief aim in respect to any milk supply. Efforts to accomplish this have assumed various forms. In many municipalities it is pasteurization or tuberculin testing of the herds. It is evidently assumed in such by-laws that tuberculin testing is equivalent to pasteurization. This is a most erroneous view as can be readily seen. Through tuberculin testing no protection is provided against any diseases other than bovine tuberculosis. Furthermore the test itself is recognized by no means as foolproof or a sure protection against even this one disease.

Much attention has recently been directed to the possibility of the infection of humans with the germ of infectious abortion in cattle. From the investigations which have so far been conducted it appears fairly certain that the germ of this disease in cattle can produce undulant fever in man. The degree of man's susceptibility to this organism does not yet appear to be well known. The fact that this disease is not recorded in our statistics is no assurance that it has not been present. Its similarity to other diseases may have permitted its identity to have been overlooked. There is no doubt but that infectious abortion is common in cattle, and if it can be shown that this is a new and previously unrecognized danger to which man is to any extent susceptible then another proof is added to the folly of placing tuberculin testing of the herds on a par with pasteurization.

PASTEURIZATION

Health officials are in agreement that proper pasteurization is by far the greatest and most efficient method for the protection of the consumer against all milk borne diseases. It is also recognized as the only feasible plan which is available for the control of milk supplies, under commercial conditions. The process itself is a very excellent one, but its operation has by no means been perfect or even as satisfactory as one could wish. It has been too generally assumed that the term pasteurization, irrespective of how it has been carried out, stands for adequate protection, and a sure barrier against milk borne infections.

An investigation of the machinery and methods involved under commercial conditions has shown clearly that this barrier is a very imperfect one, and

requires extensive supervision to achieve the required results. The chief purpose of this paper is to point out some of the common defects in connection with pasteurization and their remedies.

PROVINCIAL SUPERVISION

The engineering features in connection with pasteurizing equipment have, in recent years, received much study and attention. It has been obvious that much defective equipment has been placed on the market, and is still being sold. Last year the Department made an inspection of the various pasteurizing plants in the Province with a view to detecting these defects. From this survey it was evident that there were many loopholes through which inferior pasteurization might result. It is not to be expected that the purchaser of such equipment will in every case understand all the details in connection with the modern pasteurizer, and he is consequently, in most cases, at the mercy of the salesman who is stressing the use of certain equipment. This has resulted in very defective installations. Under the present procedure these installations do not require approval either by the local health officials or by the provincial. The Provincial Department has full control over waterworks and sewerage, and no new systems or extensions can be constructed without first having the approval of the Department. It does not seem too much to expect that the same requirements should hold for milk pasteurizing plants where so much is at stake, and where the possibilities for the spread of infection are similar to those of water supplies.

PLANT LAYOUT

A study of the various pasteurizing plants shows that they have not always been laid out to the best advantage to avoid unnecessary or undesirable handling of the supply. Milk is difficult to handle without subjecting it to contamination and to increased bacterial counts. Long lengths of pipe and pumps are very difficult to clean properly, and invariably are the chief source of high counts following pasteurization. A pasteurizing plant should be so laid out as to avoid these defects wherever possible. Milk should receive the minimum of handling following treatment in the pasteurizer. This final course should also be protected thoroughly to avoid contamination in any way.

Two particular types of plant layout are in common use, viz., gravity and pumping. The former is by far the superior, and in this way overcomes the necessity for pumping the treated product. This, however, is not always possible in the small plant since it requires the pasteurizers to be elevated some height above the floor. Where this is not feasible and pumping is necessary the only alternative is to exercise extreme care in the cleaning of all pipes and pumps. All this equipment should be so constructed that it will wash readily, and can be easily taken apart.

PIPING LAYOUT

The arrangement of the piping in a milk plant is an important factor, and much harm may develop as a result of a defective connection. Instances have occurred where the raw milk was run through the same piping that the pasteurized supply later followed. Such a connection is extremely hazardous irrespective of the cleaning given between use, and should under no circumstances be permitted.

CLARIFIERS OR STRAINERS

It is the custom in many plants to employ clarifiers or strainers on the milk as it leaves the pasteurizer, and before reaching the cooler. This is an undesirable arrangement, and has a tendency to raise the bacterial counts materially. Milk which has been produced under sanitary conditions should not require clarification, but where this is felt necessary to deliver a clean product it should only be employed prior to pasteurization.

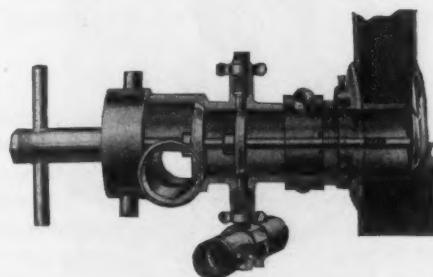
PASTEURIZING EQUIPMENT

The pasteurizing equipment itself has been subject to a number of defects in design, chief of which are the following.

- (a) Inlet valves.
- (b) Cold pockets.
- (c) Outlet valves.
- (d) Foam formation.

(a) Inlet Valves

The inlet valves to pasteurizers are important only in the larger plants where the milk is stored in vats prior to admission to the pasteurizer. Under these arrangements the pasteurizer is supplied with milk and the valve turned



Special inlet valve.

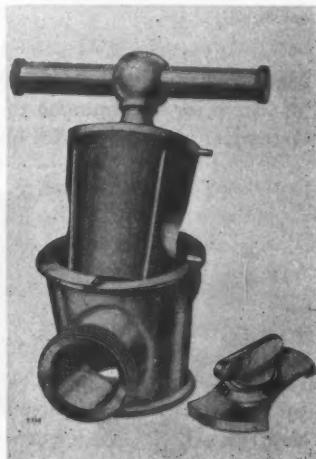
off without disconnecting the milk line to that unit. If the valve leaks, as practically all these valves do, some milk will reach the pasteurizer too late to receive the necessary treatment, and in this way the entire batch may become infected. This difficulty has been overcome by the use of a new leak protector inlet valve so designed that any milk which may leak past the valve plug will drain to the floor without reaching the supply in the pasteurizer.

(b) *Cold Pockets*

In many pasteurizing installations the outlet valve is found at a great length from the pasteurizer itself, sometimes as much as 30 inches, thus creating what is termed a cold pocket. It is obvious that the milk in this length of pipe between the pasteurizer and the valve cannot be heated to the same temperature as that in the holder. Such pockets should not be permitted and the newer valves are so arranged as to eliminate this pocket entirely. For existing equipment it is possible to reduce this pocket to 3 or 4 inches, and this will not create any material difference in temperature.

(c) *Outlet Valves*

Every pasteurizing plant is equipped with an outlet valve, and this is one of the most important features of the unit. As in the case of inlet valves these all tend to leak, and if special provision is not made to overcome this some of the milk will escape the full heat treatment. Modern flush type valves have now been perfected, and can be applied to existing equipment or to new. For the latter they are built into the machine, while their use on the present machines will still leave a slight pocket. These valves are so constructed that



Special flush valve to overcome cold pockets.

the face of the valve comes flush with the inside of the pasteurizer. Any leakage past this face is permitted to escape to the floor. There is also a connection to this valve from the steam line, which works automatically with the opening and closing of the valve. In this way any milk which is present in the valve itself will be steamed before coming in contact with that in the pasteurizer. These new valves can now be procured and should be installed on all pasteurizers.

(d) Foam

Certain equipment, particularly pumps, clarifiers, heaters, etc., induces foam to form on the surface of the milk in the pasteurizer. This is caused by air becoming entrained in the milk. The foam is generally at a lower temperature than the milk in the pasteurizer, and is therefore a defective arrangement. This can be materially reduced by the design of the equipment, but it is seldom possible to eliminate it entirely, and the best practice is to deliver a steady flow of steam over the top of the milk in the pasteurizer during the holding period. In this way the temperature of the air is raised and the foam is in turn heated.

PASTEURIZING TEMPERATURES

There has recently been a considerable difference of opinion in respect to the temperature necessary for proper pasteurization. This opinion has been divided between 142° F. and 145° F. with a holding period of 30 minutes. The advisability of one or the other depends entirely upon the equipment in use and the care with which the process is carried out. It would seem that the temperature should be a minimum of 142° F. for 30 minutes. 145° F. is not objectionable and little effect is noticed on the cream line until the temperature rises above this point. The present Milk and Cream Act of Ontario permits, if literally interpreted, a treatment of 140° F. for 20 minutes to be regarded as pasteurization. This is not recognized by health authorities as adequate under commercial conditions, and fortunately is not used extensively. Recording thermometers should, of course, be placed on all pasteurizing plants. Some municipalities make the practice of purchasing and controlling these thermometers. It would seem proper, however, that the milk dealer rather than the municipality should pay for this as part of his equipment.

DEFINITION OF PASTEURIZATION

The definitions or requirements for pasteurization invariably deal only with the heat treatment itself, and not how the milk shall be handled between pasteurization and delivery to the consumer. If milk is to be classed as pasteurized and sold to the consumer as such there should be no danger of it containing pathogenic organisms. To ensure this it must not only receive the necessary heat treatment but it must be protected throughout all future handling, including cooling, bottling, capping and delivery. By no means

does it seem proper to permit the sale of milk labelled as "pasteurized" when it has not been protected during cooling, is not bottled and capped automatically, or where an employee is a carrier of any infectious disease. Unfortunate results have occurred only too often where the milk has been contaminated subsequent to pasteurization. To avoid such accidents rigid inspection of the equipment, process and personnel will be required before milk shall be permitted to be labelled as "pasteurized."

COOLERS

Milk coolers in pasteurizing plants are very frequently a source of high bacterial counts. They are permitted to remain uncovered in rooms containing dust and flies. It is not surprising, therefore, to find higher counts after the milk, particularly the first flow, has passed the cooler. Modern standards require that coolers be either placed in a small room free from dust and flies or be covered. Suitable covers can be arranged by sliding glass doors, removable tin covers, or metal covers sliding on a rail which permits them to be moved back for cleaning purposes.

BOTTLERS AND CAPPERS

There is a strong tendency in the smaller plants to do manually much of the work subsequent to pasteurization. Automatic bottling and capping devices are expensive for the small dealer, yet this operation is the most probable point at which contamination may enter the milk. Bottlers should be so arranged that the milk will flow to them from the cooler without being



A covered cooler.

subject to exposure to dust, flies, or dripping water. Where the expense of automatic capping is too great a manual capping machine may be employed to advantage. This costs between \$50 and \$75, and avoids the necessity of the hand coming in contact with the milk or the cap.



PROTECTION OF BOTTLE DURING DELIVERY

Milk bottles are generally subject to much handling and contamination during delivery. The claim may be made that the bottle top should be thoroughly washed in the home before the cap is removed. This is rather much to expect, and it is unfortunate that all bottle tops cannot be covered, as is the case with certified milk. This cover fully protects the top against handling. While the possibility of the spread of disease through milk at this stage and by the driver may not be so great as at other points it nevertheless requires consideration, and necessitates that all delivery men be free from infectious diseases, or the carrier stage, the same as those working in the plant.

EXAMINATION OF MILK

Factors of much importance in the control of milk supplies are the periodic examination and tests used. A number of these are generally employed, chief of which are the sediment test, butter fat content and bacterial count. The sediment test tells only the amount of dirt in the milk at that time. It does not distinguish between whether the milk has been cleanly produced or has been well strained or clarified. Inasmuch as there should be no dirt present in milk it is useful, but it fails in that it does not indicate what has taken place prior to that test.

The bacterial count is the real test of a milk. High counts may be caused by many factors, and the chief benefit of these analyses is that they show the necessity for investigation. When an adverse count is secured it becomes the duty of the inspector to assist the dairyman in discovering what has been at fault. The laboratory facilities of the Department of Health are available for these analyses and samples may be forwarded as frequently as desired. Municipal officials are generally confronted with the difficulty of securing suitable containers for shipping the samples. The Department is now preparing a box for this purpose and, if satisfactory, it can be supplied at cost to those municipalities who so desire it.

In conclusion it may be said that the safeguarding of a municipal milk supply is both a provincial and municipal responsibility. There can be no doubt that the problem is one of securing a clean product and an absolutely safe one. Undoubtedly the process of pasteurization has in the past been far from perfect, but in spite of this has accomplished the greatest protection yet offered. The process can be made entirely safe by the use of the proper machinery, installed in an approved manner, and with proper supervision of the operation. To accomplish this may require more consideration from health officials than has been given in the past.

The Division of Child Welfare

DEPARTMENT OF PENSIONS AND NATIONAL HEALTH

HELEN MACMURCHY, M.D. (TOR.)

Chief of Division

CHILD welfare can never be confined within the limits of one department of government. Under the Immigration Department is the Division of Juvenile Immigration. Under the Superintendent-General of Indian Affairs child welfare work for Indian children is carried on. The North-west Territories and Yukon Branch has charge of all work for Eskimo children. Under the Home Branch of the Soldiers' Settlement Board much important work is done both directly and indirectly for the benefit of the home and for maternal and child welfare. The Department of Agriculture, under the Agricultural Instruction Act of 1912, has done a great deal for the work of Women's Institutes, school fairs and exhibitions, school clubs and other organizations. The financial assistance given to the Women's Institutes in the different provinces has been provided from the money granted under this Act by the Dominion Government. The Department of Agriculture has in other ways, especially by improving the milk supply, assisted in child welfare work.

The Act of the Canadian Parliament establishing the Department of Health as "a department of the Government of Canada, over which a minister of the Crown, to be named by the Governor-in-Council, shall preside," received the assent of His Excellency the Governor-General on June 6, 1919, and came into force on that day, the Hon. Newton Wesley Rowell, K.C., being the first Minister of Health of the Dominion of Canada. The department was organized by the appointment of Dr. John A. Amyot, C.M.G., as Deputy Minister, in September of that year, followed by the appointment of the late Dr. D. A. Clark as Assistant Deputy Minister. In addition medical services formerly under the direction of other departments were transferred to the new Department of Health, each service becoming a division of the new ministry, under a chief. Certain new divisions were also created under the provisions of the Act. The first of these to be organized was the Division of Child Welfare, the appointment of a chief being made in April, 1920.

By "An Act respecting the Department of Pensions and National Health," assented to 11th June, 1928, the Department of Health of Canada became united with the Department of Soldiers' Civil Re-establishment under the name of the Department of Pensions and National Health.

Part II, Section 9, of the Act reads as follows:

"The duties and powers of the Minister under this part shall extend to and include all matters and questions relating to the promotion or preservation

of the health of the people of Canada over which the parliament of Canada has jurisdiction, and, without restricting the generality of the foregoing, particularly the following matters and subjects:

"(a) Co-operation with the provincial, territorial, and other health authorities with a view to the co-ordination of the efforts proposed or made for preserving and improving the public health, the conservation of child life and the promotion of child welfare."

CHILD WELFARE IN THE PROVINCES

Provincial autonomy is specially recognized in the provisions of the Act. A bureau of child and maternal hygiene and public health nursing has been established for some years past in certain of the provinces. In other provinces one or more of these special functions is developed separately. A department of public health nursing, under a superintendent, has, in some provinces, organized and carried on, under the direction of the Deputy Minister of Health or the chief executive officer, many of the functions included in a broad general programme of child welfare.

There are five or more different provincial cabinet ministers who direct matters belonging to child welfare. Besides the Minister of Health and the Minister of Education, there are also the Attorney-General of the province, who has jurisdiction over juvenile courts, the Provincial Secretary, who usually directs the work for dependent and delinquent children, and the Minister of Agriculture, who directs much work for the benefit of farm boys and girls. Under this minister, also, the grants given for Women's Institutes are administered. The Mothers' Allowance Act is usually administered under the direction of the Provincial Treasurer or the Provincial Secretary. Under the Minister of Labour, in some provinces, certain legislation for maternal and child welfare is administered.

In most provinces there is, in addition, a superintendent of neglected, dependent and delinquent children, who has wide powers, and is clothed with authority under the Children's Act (or Neglected, Dependent and Delinquent Children's Act) to take charge of children who, for any reason, have become dependent, delinquent or neglected.

In some provinces this superintendent has charge of children who are disabled or defective in mind or body. But in Canada, as elsewhere, the work of prevention and of adequately caring for disabled and defective children is only beginning. Several cities have special classes, under the regulations of the Department of Education, for children who, for any reason, are prevented from obtaining proper benefit in the ordinary school classes, but who are able to obtain benefit in classes where their real powers are discovered and developed and their special disabilities or defects of mind or body are considered, and means are adopted to understand, cure, ameliorate or overcome these, so that these children may receive education by which they can profit.

VOLUNTARY ORGANIZATIONS

Voluntary societies are of the greatest help in child welfare work in the Dominion. The Women's Institutes are clubs for farm women. Their motto, "For home and country," expresses their ideals. Their work has a wide range and a direct relation to farm life. Every province in Canada has its provincially-organized Women's Institutes or Home-makers' Clubs, and there is a Dominion Federation of Women's Institutes. They are a power for good in the land. The "Cercles de Fermières" in Quebec, the Women's Section of the Grain Growers' Association in the prairie provinces, the United Farm Women and all women's organizations are for child welfare.

There are two other nationally-organized women's societies which carry on work of different kinds, civic and patriotic, and are interested in child welfare. These organizations are "The Imperial Order of the Daughters of the Empire" and "The National Council of Women." They are mentioned here because, like the Women's Institutes and other organizations of Canadian women, they are friends of child welfare. They have done much themselves for Canadian children and they have stirred up others to do more. Other women's organizations which work directly or indirectly for child and maternal welfare are the nationally-organized and other women's societies in the different churches. For example, in the Roman Catholic Church "in a survey made by the Catholic Women's League among its members, with regard to child welfare activities during the period 1921-1922, it was found that ninety branches, located in as many different towns, were devoting time and energy to the problems of child life. . . . The League, through all its branches, is supporting the movement for the employment of district nurses, school nurses, and medical inspection in schools." This work has greatly increased since 1919.

The good work done for child welfare by Jewish societies and organizations of Hebrew women is well known.

No attempt is here made to give information as to institutions for children, but it should be remembered that there are many of these in Canada, under the direction of voluntary and benevolent associations, religious orders and churches, especially the Roman Catholic Church, and under other organizations, such as the Salvation Army. The Boy Scouts, the Girl Guides, and the organizations known respectively as "Big Sisters" and "Big Brothers" are actively engaged in work which helps the home and the children. The Rotary, the Kiwanis, Lions and Gyro Clubs have done much in recreation work for disabled children. The Shriners have a great hospital scheme for disabled children. All these have co-operated with the Division of Child Welfare in the Department of Health of Canada.

THE DOMINION COUNCIL OF HEALTH

To return again for a moment to the Act: there is a direct channel for the interchange of opinion and for working out a mutually agreeable and beneficial

understanding, thus securing constant and harmonious co-operation between the responsible health officials and authorities of all the provinces and the officials and authorities of the Dominion of Canada under the Act, namely, the Dominion Council of Health. The Act provides that this council shall consist of the Deputy Minister, who shall be chairman, the chief executive officer of each provincial department of health, and five other persons appointed by the Governor-in-Council.

The Dominion Council of Health is thus a statutory body. Its meetings are held twice a year, and its interest in child welfare may be judged by the fact that at the regular meeting in May, 1920, immediately after the establishment of the new "Division of Child Welfare," more than half the time of the sessions was devoted to child welfare. It was on this occasion that a unanimous request was made by the Dominion Council of Health for original Canadian publications on child welfare. During the discussion members took occasion to express their appreciation of the publications of the Children's Bureau of the United States Department of Labour at Washington and also of the generosity and courtesy with which these publications had been presented, on request, to health and child welfare officials in all parts of Canada. It was felt, however, that Canada should not continue to borrow, but rather should exchange.

THE CANADIAN MOTHER'S BOOK

In accordance with this request, the first national Canadian publication on child welfare was written in August, 1920. It was named *The Canadian Mother's Book*, and was revised and redrafted several times before being sent to the Government Printing Bureau in December, 1920. The first copies were received from the King's printer on March 3, 1921, and numerous editions in English and French, *Le Livre des Mères Canadiennes*, have now been issued. The illustrations, the large type and other attractive features of this little book are owing to the personal interest and support of Dr. Amyot and the late Dr. Clark, who helped in every way to secure these. The total number distributed now exceeds 500,000, and most of these books have been sent out in answer to personal requests by mothers and fathers.

No one will ever convince the Division of Child Welfare that mothers do not want to learn. Thousands of mothers' letters are on our files to prove the contrary. The measure of success which these publications have met with is due not only to the interest and aid of provincial and local health authorities, to municipal officials and registrars of births, to the clergy, to voluntary associations, women's clubs and private citizens, but also to the press of Canada, who were very generous in noticing the *Little Blue Book*, as it was often called by the mothers in their letters, thus giving a name to Canadian national publications on child welfare.

THE LITTLE BLUE BOOKS

Publication No. *The Mother's Series*

2. *The Canadian Mother's Book.*
3. *How to Take Care of the Baby.*
4. *How to Take Care of the Mother.*
5. *How to Take Care of the Children.*
6. *How to Take Care of the Father and the Family.*

The Home Series

7. *Beginning Our Home in Canada.*
8. *How to Build Our Canadian House.*
9. *How to Make Our Canadian Home.*
10. *How to Make Our Outpost Home in Canada.*
11. *How to Prevent Accidents and Give First Aid.*

The Household Series

12. *Canadians Need Milk.*
13. *How We Cook in Canada.*
14. *How to Manage Housework in Canada.*
15. *How to Take Care of the Household Waste.*
16. *Household Cost Accounting in Canada.*

The National Series

37. *Maternal Mortality in Canada.*
38. *Mother—A Little Book for Women.*
39. *Mother—A Little Book for Men.*
40. *Child Welfare Work and Workers in Canada for Children not in Their Own Homes.*

PLAN OF WORK AND GENERAL POLICY

To return once more to the provisions of the Act: it will be noted that no restriction or limitation is laid upon the Minister in his efforts for "the conservation of child life and the promotion of child welfare."

It was never intended that the work of the Division of Child Welfare should be limited in any sense to child hygiene, and a good deal of time was devoted early in 1920 to framing a "Plan of Work and General Policy" for our own guidance in the division, and for reference from time to time. Attention must, however, again be directed to the fact that the greatest opportunity of the Division of Child Welfare, as an integral part of the Department of Pensions and National Health, is in co-operation and consultation and the carrying out of the wishes of the nation, as expressed through the constituted health authorities of the provinces, in regard to inquiries, information, pub-

lications and general standards of child welfare, and promoting and recording child welfare work throughout Canada. This plan of work and general policy makes reference to the following objectives in child welfare and maternal welfare:

*"To help the home;
To help to find a true home for every homeless child;
To save and preserve maternal and child life;
To promote and secure maternal and child welfare;
To maintain and improve the health, strength, and well-being of mothers and children;
To make known to all Canadians the principles of maternal and child welfare, and the supreme importance of home life to the individual and to the nation, so that national interest in these matters may be aroused and the best modern methods for securing the welfare of the home and the nation may be understood and carried out."*

The following methods, among others, are mentioned in the "Plan of Work and General Policy":

"Co-operation with all provincial authorities, especially with provincial ministers of health and their departments; also with provincial boards of health and medical officers of health, provincial and local; and with directors and officers of bureaus or departments of child welfare.

"Co-operation with the ministers of education and departments of education, in reference to the provision of comfortable, suitable and well-planned and well-equipped school-houses, to school hygiene, medical and dental inspection of schools, school nurses, physical examination of children; to children who need special care and training and other matters pertaining to child welfare, more especially the instruction of teachers in Normal Schools as to the great principles upon which child welfare in the home and in the school is founded and the best methods of carrying these out.

"Co-operation with all voluntary societies or other organizations which carry on child welfare work or are interested in maternal and child welfare and home life."

THE CANADIAN NATIONAL COUNCIL OF CHILD WELFARE

The relation between voluntary organizations or associations and government departments, such as the Department of Pensions and National Health, is a very important one and every effort has been made to co-operate with voluntary associations interested in the work of child welfare. Many requests were received by the government, including some letters ante-dating the Department of Health Act, that a Dominion Conference on Child Welfare should be called. This was done by the Deputy Minister in accordance with these requests and not as an official matter, the conference being assembled at Ottawa on October 19 and 20, 1920. The Canadian Council of Child

Welfare, intended to secure co-operation among voluntary associations doing child welfare work, was organized as a result of this conference.

THE CANADIAN ASSOCIATION OF CHILD PROTECTION OFFICERS

The Canadian Association of Child Protection Officers is another Canadian child welfare organization. During the sessions of the first Dominion Conference on Child Welfare in 1920 and after its adjournment, a request was made to the Division of Child Welfare that some means be taken to provide for a conference of judges of juvenile courts, provincial superintendents of neglected, dependent and delinquent children and other provincial officers, officials of children's aid societies and superintendents of detention homes and industrial homes or schools. Arrangements were made to hold such a conference in the city of Winnipeg on October 5th, 1921. This conference resulted in the organization of the Canadian Association of Child Protection Officers, the membership of which is strictly limited to those who are responsible to the constituted authorities for the welfare and education of children who need special care and for children who have to be dealt with under the Juvenile Delinquents Act or are in danger of being brought into this position.

EFFORTS FOR CHILD WELFARE

There is perhaps no effort for child welfare which has been neglected or untried in Canada. Child welfare associations and children's aid associations have long been at work in most Canadian cities. Many cities and towns have child welfare centres. Classes for children suffering from cardiac disease are organized and children of pre-school age receive attention in many of the cities. The Junior Red Cross has paid special attention to the needs of disabled children in the different provinces. Public health nurses and school nurses are increasing in number and the importance of their child welfare work is recognized. The province of Saskatchewan gives a "Maternity Benefit" of twenty-five dollars. It is realized that the education of the community and especially of parents, as to child welfare, is the great object to be sought, and that each community has the responsibility for the children of the community. There are many signs that this responsibility is being more strongly felt and more adequately met. For example, the facilities for play and recreation, the number of new supervised play-grounds and the efforts made in schools to improve the health of children, seem to show this. Medical inspection of schools has been carried on in Canada for more than twenty years. There is legislation in most of the provinces, but the plan of organization and the results vary. School libraries are established in Saskatchewan, Ontario, and other provinces.

THE MOTHERS' ALLOWANCE

The advice given to Alice when she was searching for the White Queen was to turn and go in the opposite direction. Those who, having their eyes

fixed on child welfare, turn and go in the direction of the mother, those who turn to secure a living wage for the father, and those who, when the father has been removed by death, or disabled by accident, turn to provide Mothers' Allowances and Workmen's Compensation Acts, are on the way to find the Queen of National Service called Child Welfare.

Five out of the nine provinces of Canada have Acts providing Mothers' Allowances for widows and other destitute mothers. The province of Manitoba in 1916 was the first to take up this work.

It should be remembered that the money is not the only benefit conferred. The visitors who administer the money, in their friendly visits to the home, by their counsel and their good influence, probably more than double the benefit of the money to the home.

In the province of Quebec so much is done by voluntary associations such as "L'Assistance Maternelle," and by the Roman Catholic Church, especially through the schools, homes and orphanages managed by religious orders, that, in the opinion of many citizens, necessity for the Mothers' Allowance does not exist there, in the same way nor to the same extent.

CO-OPERATION

Co-operation with other departments of the Government of Canada, with the officials of the provincial Governments, and with the medical profession has grown closer year by year. An instance of this is the "Maternal Mortality Enquiry" undertaken in December, 1924, at the request of the First Conference on Medical Services in Canada, and completed three years later, with the active help and co-operation of all the above-mentioned, including over 2,000 physicians.

The welfare of children, considered, as it ought to be, from the highest standpoint and with the widest sympathy, means the future of the nation.

That nation that neglects its children has no great future. The welfare of our children is not so much one of the departments in which government work is done as it is one of the great ends of government itself, perhaps the greatest end.

Mental Health*

G. H. STEVENSON, M.D.

Medical Superintendent, Ontario Hospital, Whitby

CONSIDERABLE significance can be attached to the fact that you have invited three speakers to address your organization on the mental aspects of health. It presents an interesting development of previous views on the matter and indicates a knowledge on your part that the growing child is something more than merely physical; that in training the child to take his part in the community, his ability to adapt himself and work harmoniously with his fellows is just as important as that he be sound in mind and limb. It is for these reasons that I have decided to speak on the subject of Mental Health.

We know what is meant by physical health: The perfect co-ordination between cells, between organs, between systems of organs, full development of all of them, freedom from the crippling effects of trauma or infection, the chemistry of the body producing the optimum effect, metabolism going on at its normal rate, the splendid and unconscious functioning of the internal organs, and all under the control of a finely developed nervous system.

Mental health is perhaps more difficult to describe and define. None of us perhaps has perfect mental health because of limitations of endowment and the various physical and mental traumata and environmental influences we may have been subjected to, but we should be able to enjoy at least good mental health. The healthy minded individual should be able to enjoy life without feeling the need to get away from reality by "inferiority reactions", of which I shall speak in detail a little later; should be able to meet his fellows on a plane of equality; should be able to find real interest and incentive in his efforts to accomplish something worthwhile; should not be too cast down by defeat, but should be able to face life's situations with equanimity; should have his emotions under control rather than be controlled by his emotions; should be able to understand the motivations of his own conduct and control such conduct by the use of his reasoning powers.

Physical health and mental health are usually closely related to each other, but not necessarily so. We see examples of individuals with Apollo-like bodies and warped or under-developed minds. Conversely some of the healthiest minded have fought physical disease or deformity for a lifetime. The sound mind in the sound body is our ideal, however difficult of attainment this objective may be.

This interdependence of physical and mental health may be briefly indicated:

*Address delivered at the Annual Meeting of the Ontario Educational Association at Toronto, April 11th, 1928.

So often we see individuals with focal or general infection, who are unhappy, inefficient, emotionally unstable or even psychotic. One who has suffered the ravages of tuberculosis and realizes his limitations may brood or chafe at the restrictions imposed upon his spirit by physical disease. The malformed, crippled, or undersized, may develop the so-called "inferiority complex" and with it may have difficulty making a proper adjustment to life. On the one hand we see the brooding, pessimistic, misanthropic, or cynical individual, and on the other the individual of the over-compensation type who attempts to outdo his more fortunate fellows by greater intellectual achievements and, perhaps overdoing it, results in the so-called "nervous breakdown" seen so commonly in adults.

The physical health conversely may be affected by mental attitudes. Professor Cannon, of Harvard University, has shown that in animals the presence of fear, anger, pain, rage, will produce an increase of heart rate and higher blood pressure, a stoppage of the flow of the digestive juices and slowing of intestinal peristalsis, resulting in improper digestion of food with dyspepsia and constipation. Kooy of Holland has demonstrated that individuals who are anxious, fearful or worried, do have these same symptoms which disappear when the emotional stress is removed. These suffice for the examples of the deleterious effects of unpleasant emotions on the purely physical, and point out that the long continued presence of these pathological conditions may become habitual and become a part of a vicious circle, the emotional affecting the physical and the physical exerting an adverse effect on the mental. Some indication is thus given, which cannot be sufficiently emphasized, of the ill effects of disturbed or abnormal emotional states. We know, of course, that the primary object of these physical changes, the result of emotional stresses, was to assist the animal in flight or fight should it be in danger. But if we are really healthy minded we should no longer need this mechanism, and certainly should know better than to use it to our own disadvantage.

As a race, we are not nearly so healthy minded as we think we are. We pride ourselves on our intelligence, on being "the roof and crown of things", and there is, of course, no doubt (in our own minds, at least) that we have far transcended all other species of the animal kingdom. Yet we are the only species of the animal kingdom that indulges in wars—both sacred and secular (and how terrible each can be)—in alcohol, drugs, crime, suicide, nervous and mental disorders. Can we look at the millions incapacitated by these various adjuncts to civilization and still say we are enjoying good mental health? Why do we, as civilized people, find it necessary to have such modes of reacting? Is life such a bitter thing that we must find some way of escape? Are these the inevitable price of civilization? Is civilization worth such a price? Can we not have the benefits of civilization by paying a lesser price? Will it be necessary to revert to a more primitive condition to be more healthy minded? Is there a middle course—to get the best that civilization has to offer, and by developing and improving our mental health, to pay a more

reasonable price? Can we not better adjust ourselves so that we may have more satisfaction in things as they are, or as they may be made?

The reason as I see it for so much suffering and maladjustment is the three-cornered conflict between the emotions, reason and life itself. We have not learned to control our emotions and put them where they belong. In the lower members of the animal kingdom, and presumably in our own remote ancestry, when the world was very young, emotions and instincts were necessary to the preservation of the species and the race. Instincts are always associated with strong emotions, and the instincts we have at the present time, the inborn inherited forces, which seek to dominate and control our conduct, are the accumulated experience of, perhaps, thousands of generations. Do we wonder at their power having lasted so long a time? I think we are justified in saying that life was simpler in those days than now. Forces ruled, no doubt, but Jack was nearly as good as his master, and by displaying a moderate amount of activity, each secured what he needed for his comfort and contentment and avoided dangers, which he might not be able to successfully combat. The emotion of fear was doubtless strongly associated with his desire to protect himself from harm, and as such served a very useful purpose.

With the gradual development of reason and intelligence he made the beginning of our civilization. He began to trap and snare other animals for food, to make certain instruments for defence or offence; he learned how to control fire. So long as the human species was few in number things doubtless went along beautifully, but as the number increased, and men banded into groups for greater protection and safety, then began the conflict between the instincts and their attendant emotions on the one hand and reason on the other. The emotion of fear reasserted itself, each group being suspicious of the motives of other groups from whom they sought to escape, or whom they wished to exterminate, so as to increase the degree of comfort and safety each group felt it must have. This misuse of the emotion of fear has been carried down to the present day, as witness, the Great War, which is so recently behind us. Who can deny that the real cause of that terrible cataclysm was the emotion of fear, each European nation fearful and suspicious of the other, each attempting to increase its sense of comfort by building a huge navy, army and implements of war? What was more natural than when each had builded such a top-heavy structure (for defence only, remember) the nations fell one on the other, and indulged in such an orgy of mutual murder as has never been seen before? And yet we pride ourselves on our intelligence.

This will perhaps serve as an example of national or international mental health. I believe that national mental health is not so well developed as individual mental health, notwithstanding that the state is made up of the individuals within its boundaries. National policies must be suited to the will of the majority, and, unfortunately, the majority does very little real thinking, depending on its likes and dislikes (emotional reactions again) for the course it wishes to pursue.

As with groups so with individuals. The individual, as a unit of the herd,

comes in conflict with the civilization produced by the herd. In more primitive times the individual was able to satisfy his desires immediately and completely. He gained contentment simply and easily. We cannot do so in a civilized community. The good of the herd is paramount. We make laws for the good of the many and not for the individual. We cannot have food for the taking or we are punished. Sex hunger must be starved for economic reasons, and for the good opinion of those who make our own social standards. Our personal habits must have the approval of the crowd, no matter what our individual desires may be. High school teachers may not spill eggs on their vests without running the risk of being discharged by the trustees. Consequently, there is repression, and still more repression. We must bide our time; we must swallow our pride; we must work at tasks that may be very disagreeable. We strive for happiness only to find we must continue to strive. We must struggle to modify ourselves and our environment to secure it. When this will-o'-the-wisp happiness cannot be longer hoped for then many of us resort to artificial means to secure it. Some individuals, despairing forever, take their own lives. Others resort to alcohol or drugs, and find their dream world realized while under these influences. Many take to nervous and mental disorders, having found reality too hard for them, and in this retreat from things as they are try to find things as they would like them to be. I cannot let this opportunity go by without condemning the so-called "nervous breakdown". It is a misnomer because the nerves are perfectly intact. The only thing wrong is that we want to get away from reality, and we adopt semi-invalidism as the method. Let us be honest with ourselves—admit our defects, our inadequacies, our disappointments, and let us make the best of them. We like to blame this "inferior reaction" on overwork, but I doubt if anyone can overwork, and certainly hard work does not hurt anyone. It is the disturbed emotional tone that is so poisonous to one's peace of mind, and produces the symptoms of which we complain. Let us no longer speak proudly of our "nervous breakdowns". Let us be ashamed of them and be more wholesome in our attitude to life, and more honest with ourselves. People, who with others are the soul of honour, are often quite dishonest with themselves.

Another fact that influences our mental health by undermining our mental constitutions and lowering our resistance is the way we live. Twenty-five years ago there was "a back to nature" movement, which was laughed at and short-lived. But we must live more natural and less strenuous, emotional lives if we expect to have more rugged constitutions.

The huge city, with its noise and dirt, its speed and tension, its crowded and often unsanitary living conditions, poor and improperly prepared food, or too rich and too much food, its abuse of alcohol, its gambling spirit, its excessive stimulation, its excitement, its excesses—all these things cannot help but have an unfavourable influence on our constitutions and a subsequent effect on the children we bring into the world. It is true that rural districts produce their quota of the unstable. Rural sections are not without their

particular environmental difficulties and problems, but comparing one with the other, the urban suffers badly and statistics prove that the cities produce a larger percentage of mental and nervous sufferers than the country.

Another factor which influences mental health is the environment during the developmental period of childhood and adolescence. These influences have been stressed by the previous speakers, and I do not intend to enlarge on them. But I must emphasize the harmful effects of improper training in the home and outside it. Child guidance resolves itself really into parent guidance. The parents provide for the child really everything in the way of equipment for the battle of life—constitution and training. If they give the child a feeble or unstable mental constitution, and then handicap that constitution by improper conditioning, what can we expect of the child at maturity? I will mention only a few of the unfavourable influences that we, as parents, may give to our children: too much or too little affection, both equally dangerous; emotional scenes, such as family quarrels and bitterness; debauchery; invalidism; faulty food habits; prudishness; dishonesty; failure to train the child in habits of orderliness; failure to develop a real sense of humour; failure to train the child to assume responsibilities by deciding everything for him; failure to encourage frankness in the child by not being perfectly frank with him; selfishness; failure to teach him that true happiness and success are only attained by giving, not by getting; failure to discourage eccentricities, which easily become fixed habits; failure to develop in the child those three cardinal virtues—self-reference, self-knowledge, self-control; handing down dogmas to be accepted by faith rather than encouraging the child to think for himself.

The school, which stands *in loco parentis*, for so many years has its place in counteracting baneful influences and placing a healthful and helpful atmosphere about the child. That teacher will be most successful who best understands himself.

In summing up, then, I believe we are paying far too high a price for the benefits of civilization, an unnecessarily high price. The tremendous amount of social energy gone to waste through the so-called nervous and mental disorders, delinquency, suicides and alcoholism, is a reckless and needless extravagance, and many of the rest of us are seriously handicapped by reason of poor mental health of a less serious degree.

To have good mental health, and to be able to bequeath it to, and develop it in our children, we must develop more rugged mental constitutions by living more normal lives, by taking good care of our bodies, by the avoidance of excesses, by studying our children's needs and giving them the training they are entitled to, by relegating our instincts and emotions to a secondary place and putting reason in control, by an honest attempt to understand ourselves and our reason for doing the things we do, by sublimating our asocial or unattainable desires and utilizing the emotion and the energy pertaining to them for the welfare of others. We shall find satisfaction in work well accomplished; "we shall rise up with wings like eagles; we shall run and not be

weary, we shall walk and not faint." We shall feel that, in service to mankind, there is sufficient incentive for living; we shall know how to be calm and relaxed and confident; we shall have the courage to persevere, no matter what the obstacles.

As I write these lines, the words of Robert Louis Stevenson are before me: "When we see the good there is for us to do we realize what a beautiful thing it is to work, to live and to be happy."

"The aim of the physician who is engaged in the practice of preventive, as well as of curative, medicine is so to advise and deal with patients entrusted to his charge that they will, from their earliest years, enjoy the benefits of vigorous bodily and mental health. Many books have been written dealing with the subject of personal hygiene, and health hints in abundance are purveyed for the edification and in the interest of those who will profit by the excellent advice so offered. It is found, however, in everyday life that unless precept is followed or accompanied by practice, too often, alas, no permanent advantages accrue.

It would seem, then, that our methods should be carefully scrutinized to ascertain in what way they might be modified to more certainly attain the end in view. The first observation of significance is this. Even in highly organized and advanced communities, the majority of the people are impressed with the necessity of obtaining medical or hygienic attention only when they have been actually stricken by disease. The statement that 'he was so sick he had to have the doctor,' is still heard, and still accepted as the proper method of procedure. When the time arrives when every one in the community will feel that an actual stigma attaches to one who has a preventable physical or mental disability, then the duty of the physician will be clearly defined. He will be engaged to keep his patient well by routine examination, by supervision and advice. Then the day of the practitioner of preventive medicine will indeed have dawned!"

FitzGerald: An Introduction to the Practice of Preventive Medicine.

The Collection of Vital Statistics in Quebec

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WITH the exception of a few instances in New Brunswick, the Province of Quebec is the only area in the New World where vital statistics are collected with the co-operation of the clergy. In the Old World, Sweden, as early as 1608, established registration through the co-operation of the clergy, a system used in that country to the present time.

Long before health officers had pointed out the value and necessity of biometrical data, the Province of Quebec had its own registration system based on that established by Louis XIV in 1667 in France. Each priest in charge of a church was, by law, entrusted with the so-called Register of Civil Status, in which were recorded data of each baptism, marriage and burial at which he officiated. The clergy in France had recorded this information long before the enactment of 1667, but after this, the Roman Catholic clergy of France recorded in duplicate in the Register of Civil Status these demographic events, known as civil status acts, occurring within the limits of their parishes, the first for the records of the Church, the other for the records of the civil government.

At the commencement of the French colony on this soil the parish registration procedure was imported, and this is the reason why one finds in the Province of Quebec registrations of births, marriages and deaths as far back as 1608, the year of the founding of the City of Quebec. Long after, the Provincial Government, following the regulations of the old French Civil Code, enacted that the priests of the Province should keep their registers in duplicate. Thus, when in 1925, the question of the entry of the Province of Quebec into the Registration Area of Canada arose, the public health authorities were somewhat puzzled to find a proper system of collection of vital statistics. In the other provinces the data from vital statistics forms also served for registration purposes. There was only to be one man appointed as Collector or Registrar in each district. Since registration was already established in Quebec, the vital statistics forms were not to be used for other than pure statistical purposes. Was then the Provincial Bureau of Health to organize the collection of statistics outside the Church? In addition to many other inconveniences this procedure would have necessitated the following for example:—a father having a child for baptism would have been obliged to go (a) to the Church for his child's christening and (b) to the Registrar for statistical notification. It was considered more simple to have but one

person performing these functions. Consequently, at a convention of the authorities of all the churches of the Province, the following system was accepted by the bishops:—

For each entry made in the Church's register of civil status, the clergyman himself fills in the proper statistical form, forwarding the monthly returns to the Provincial Bureau of Health during the first fifteen days of the month following. The Provincial Bureau of Health, in addition to supplying all the necessary documents, forms and envelopes, pays to the clergymen appointed as collectors, the sum of fifteen cents for each completed form.

Appointments as collectors for parishes (here religious as well as civil or municipal limits are used) are made of all priests, clergymen, chaplains or desservants entrusted by the district protonotary with the keeping of registers of civil status. Only these are appointed as they alone have the registration data.

Actually six different forms are in use: the three well-known forms for births, marriages and deaths, and the three special Provincial forms. In addition there is the census form, filed annually, the monthly form, which assists in accounting and checking, and the foetal death form, which is made for each burial permitted for an embryo of less than six months.

There is no one who knows his flock better, their number, names, ages, etc., than the parish priest. This is the reason why the returns now made to the Demographic Division of the Bureau of Health are so perfectly filled. Very little correspondence is necessary to obtain missing data or forms. The system is working automatically with the best of results. It might be noted that according to the special Provincial forms by which each priest sends a census of his parish annually, the total population of the Province for 1926 was exactly 100,000 less than the Federal estimate. This may be accounted for by the floating population or the population without any church affiliations. It should be noted, too, notification of abortions and miscarriages is made. These figures are used solely for Provincial studies, not being forwarded to the Federal Bureau of Statistics.

The results have been exceptional for the first year. From the Roman Catholic population, we collect data on 100 per cent of the births, marriages and deaths. Certain tests have been applied and it was found that in a few instances less than one-quarter of one per cent of such events have not been notified. From the remaining population (not Roman Catholic) similar tests have shown that 85 per cent of the births are reported. Since this part of the population represents only about 15.0 per cent of the total population and is responsible for about 10.0 per cent of the total annual births, it can be claimed that the notification of births stands at 98.0 per cent or more. In regard to notification of marriages and deaths, the returns of the Province are between 99.0 and 99.9 per cent correct. This is due to the special civil or municipal laws pertaining.

THE WINNIPEG MEETING

WITHOUT question the 17th annual meeting of the Canadian Public Health Association which was held in the city of Winnipeg last month, was one of the most important meetings which the Association has had the privilege of calling. It was important from the standpoint of the papers presented; it was important from the support which it received as evidenced by the representative attendance of members from coast to coast, but it was most important in that it marked the taking on of new responsibilities by the Association. Throughout the whole meeting there was felt a consciousness of our Canadian problems, of our opportunities and of the place which the Canadian Public Health Association should fill in the development of public health in Canada.

The visit to Winnipeg will remain in the memory of all those who had the pleasure of attending the sessions as one of the most enjoyable of visits. The local committee under the chairmanship of the Hon. Dr. E. W. Montgomery, Minister of Health and Public Welfare, Manitoba, and Dr. A. J. Douglas, Medical Officer of Health of Winnipeg, planned a most generous programme of entertainment which was enjoyed by all. No province or city could have extended a heartier welcome than was given to the Association by His Honour Theodore Burrows, Lieutenant-Governor of Manitoba, and by the Mayor of the City of Winnipeg.

The annual meeting adopted the recommendations of the Executive Council regarding the plan for the future work of the Association involving the immediate acquisition of The Public Health Journal. As a result of this action the Journal will become the property of the Association at the close of the present calendar year. It is intended that the Editorial Board which has carried the responsibility of the editing and management of the Journal will be continued and that the Executive Committee will be responsible for the business management. Appreciation was expressed at the meeting of the splendid services which have been given to the Association by Dr. Gordon Bates, who for the past ten years has carried the responsibilities of the editorship of the Journal practically single handed, and of the contribution made by certain members of the Association who, as the York Publishing Company, carried the Journal through many trying years.

Thirty-five important papers were presented during the six sessions of the meeting, dealing with almost every field of public endeavour. It is hoped that all of these contributions will be published in the Journal during the coming months.

The success of the Association during the past year has been due in no small part to the advice and assistance of the Honorary President, the Hon. Dr. Forbes Godfrey, Minister of Health and Labour, Ontario, to the enthusiastic leadership of the President, Dr. George D. Porter, and to the untiring efforts of the Secretary, Dr. J. T. Phair, and the Treasurer, Dr. H. C. Cruikshank.



THE HONOURABLE
DR. FORBES GODFREY,
Minister of Health
and Labour, Ontario,
retiring Honorary
President, who for
the past four years
has contributed large-
ly to the success of
the Association.

DR. GEORGE D.
PORTER, Immediate
Past President, under
whose leadership the
Association has com-
pleted the most suc-
cessful four years of
its history.



Editorials

THE IMMEDIATE PAST PRESIDENT OF THE CANADIAN PUBLIC HEALTH ASSOCIATION

THE Winnipeg meeting of the Canadian Public Health Association was an unqualified success. From every point of view, attendance, character and content of papers presented, as well as discussion, it was a splendid meeting. Representatives from seven Canadian provinces were in attendance and total registration surpassed all expectations. The hospitality of those in the City of Winnipeg who made themselves responsible for the entertainment of the visitors left nothing to be desired.

At this time it seems particularly appropriate to make special reference to one who for eighteen years, since the organization of the Association, has, in season and out, given unsparingly of his energy, time, devotion and money to make the Canadian Public Health Association what it is to-day—a credit to the Dominion of Canada and a bond uniting public health workers from Victoria on the Pacific coast to Halifax on the Atlantic,—Dr. George D. Porter, immediate past president, former Honorary Treasurer, and at all times, guide, counsellor and friend to the Association and its members. May he long be spared to bring inspiration to all who have the welfare of public health at heart.

THE MONTREAL HEALTH SURVEY

THE report of the Health Survey Committee of Montreal recently made public is a document which represents a real achievement in the history of Montreal. The result of months of painstaking work on the part of a highly responsible and representative committee, it brings to public notice in no uncertain way definite facts as to Montreal's shortcomings in health organization and it makes specific recommendations both as to organization

and expenditure which should be of the greatest value to the committee of the City Council, which, it is understood, has been appointed to go into the whole matter on behalf of the city.

For the sake of comparison the committee reviews the records of twelve American cities, ranging in size, from New York to Rochester. It is found that Montreal has a higher general death rate than any of them. Montreal in 1927 had a death rate of 14.9 per 1,000 as compared with Baltimore 14.1, Boston 14, Pittsburg 13.4, St. Louis 12.9, Buffalo 12.7, Philadelphia 12.1, New York 11.8, Chicago 11.5, Rochester 11.1, Newark 10.9, Detroit 10.8 and Cleveland 9.6. Similarly when death rates are analyzed Montreal fares badly. Her tuberculosis death rate is 126 per hundred thousand, double that of some of the United States cities. The infant mortality rate in Montreal is found to be 113 per thousand live births as compared, for example, to Baltimore's 81 and New York, Cleveland and St. Louis with 56, each. The expenditure on public health services in Montreal has been low, 39 cents per head of the population as compared to an average of 78 cents in the twelve American cities named. In some cities the expenditures are much higher, for example, over \$1.00 in Detroit, Cleveland and Boston and \$1.18 in Pittsburg.

The Survey Committee made a careful appraisal of the existing health activities in Montreal utilizing as standards those set up in the appraisal form for city health work prepared in 1925 by the Committee on Administrative Practice of the American Public Health Association and bases specific recommendations on the results of a most exhaustive research. The recommendations of the committee if adopted will involve the immediate raising of health expenditures from 39 cents to 91 cents per capita.

Montreal is to be congratulated on the fact that the public spirit of a limited group of citizens has made the completion of the survey possible and it is to be hoped that the recommendations in the survey report will be carried out in their entirety. The great difficulty in Montreal in the past, however, has been apathy and it will be well for those behind the carrying out of this fine study to realize that for a time continuous education of the taxpayers and voters of their city will be necessary if the necessary money is to be provided for the financing of their sound and reasonable proposals.

CHILD HYGIENE

H. E. YOUNG, M.D., AND J. T. PHAIR, M.B., D.P.H.

THE ESTABLISHMENT OF CHILD HYGIENE

THOSE who are responsible for the maintenance of public interest in any particular phase of public health are periodically faced with the necessity of reviewing the results of their efforts. One is tempted to sympathize with them in their attempt at stock-taking. Child hygiene, while no exception to the general rule, offers some difficulties more or less unique.

The operation of an intelligent, seriously considered child health programme, either state or municipal in character, is an innovation of the twentieth century. The appalling loss of infant life of a generation or two ago, while it was seriously deplored by the leaders in medical and community circles was, however, largely considered to be inevitable, in view of the number of factors involved. Three of these factors are noted: the almost universal lack of interest on the part of governmental or other recognized agencies in the matter; the belligerent attitude of the parent towards outside interference, where such existed; and the lack of accurate, scientific knowledge on the part of the rank and file of the profession of medicine as regards child health.

Compulsory school attendance, following its universal adoption, did much to pave the way for the acceptance, by the ultra-conservative parent of average intelligence, of public interest in the physical well-being of his offspring. Paediatrics, as a separate entity in the field of medicine,

is only 20-30 years old, although efforts were made to emphasize its importance early in the eighteenth century. The average conception of the disturbances of infancy and childhood, until a few years ago, was that they were miniatures of comparable conditions which afflicted adults, and the treatment required was merely a modification of the dose of the therapeutic agent ordinarily administered to the grown-up sufferer. This attitude by the profession and laity has been very largely dissipated, and much of the confusion associated with the introduction of certain rather complex methods of infant feeding has been removed, so that with few exceptions, there is a now general acceptance by the profession of the value of the newer knowledge of infant and child care.

Unfortunately, or otherwise, the attitude of municipalities as regards the expenditures of public funds for this purpose has been most difficult to influence and perhaps rightly so. The question of where state responsibility began and individual responsibility ended, is one with which master minds have wrestled without even to-day having reached a satisfactory conclusion. Large sums of money were, however, raised and spent by voluntary agencies in order to arouse a health consciousness, so-called, on the part of individuals and governmental bodies and with some effect. The fact remains, however, that despite "demonstrations" and the presentation of seemingly con-

vincing evidence of the need and value of this work, there are still many who are apparently not sufficiently convinced of the necessity for the operation of such a service, by the state, town or city, to warrant their endorsement of any sufficient expenditure for its satisfactory conduct.

The suggested Child Hygiene programme in any community demands, first, an intelligent interest on the part of the individual parent in the physical well-being of the child concerned; second, a knowledge of the newer paediatrics on the part of the family physician; and, thirdly, facilities for the satisfactory diagnosis and treatment of conditions existent among those economically so situated that they cannot afford to pay for service. While it is presumed that the first is always present in the mothers of normal intelligence, apparently it is not always evident, and much still remains to be done in the way of dispelling the ignorance associated with this subject. No opportunity should be lost to bring to the attention of parents or prospective parents the necessity for knowing and observing the rules of child hygiene. This necessity implies that there shall be some available authoritative source of information to which the mother or other individual interested shall have easy access; or better, it demands that there shall be a continuous contact between the person to be served and the source of information which shall require the minimum of effort on the part of the recipient. This premise being accepted, the necessity for a public health nursing service being estab-

lished is almost without argument.

The public health nurse, or other agency interested, persuades the mother to take her child periodically to the family physician, and rightly so. This necessitates that the physician shall have something to offer in the way of help when she gets there. The physician who thinks only in terms of treatment to the exclusion of prevention is not long going to be able to retain the confidence of this type of patient.

Municipal governments are at the cross roads, charges of extravagant expenditures and of "paternalism" are bandied freely in every progressive town or city. They must either go forward in face of this criticism, or express sympathy with the movement and sit with folded hands. The question that the leaders in public health must answer is, how far is the state justified in spending public funds on this type of service? Is the responsibility assumed by the parents at the time of matrimony to be lightly shifted at times of economic stress, or is it to be ignored altogether? The solution of the problem is, frankly, not easy. At the moment the organized medical profession would seem to be the group most able to offer a way out. Given a profession actively engaged in prophylaxis, as well as therapeutics, a profession who realize the educational value of certain health agencies of which public health nursing is the most important, and who recognize the right of the financially poor to be in possession of all health advantages, and your child hygiene programme is at least on its way to temporary establishment. *J. T. Phair.*

EPIDEMIOLOGY OF VITAL STATISTICS

A. C. JOST, M.D., AND NELL E. MCKINNON, M.B.

BR. ABORTUS INFECTION

WITH undulant fever (Br. abortus infection) being recognized and facilities available for serological diagnosis, it should be pointed out that Malta fever is in the list of diseases requiring notification. Previous to this year the only cases of Malta or undulant fever recognized were imported. Since it was established that there might be found in Canada a similar and indistinguishable disease, due to Br. abortus, the causative agent of contagious abortion in cattle, about twelve cases have been brought to light in Ontario. The probability is that many more cases will be found. The number already brought to light is sufficient to justify, as a routine procedure, the agglutination test with abortus antigen of all specimens of blood sent in for Widal test and giving a negative result.

The epidemiology of Br. abortus infection is not altogether clear in spite of the fact that the causative organism has been isolated from the milk used by certain patients and from the blood of the patients. In many cases it is difficult to find any connection between the milk and the case. Contagious abortion infection is known to be very prevalent in the dairy herds of Canada. In many instances the organism occurs in the milk without the cow having shown or showing any signs of disease. It would be expected that the human infection would occur in groups and would be found mostly in the age group using relatively the most milk,

i.e., young children. This, so far, has not been found to be the case. Rather, have cases been very scattered and in older people. Whether or not infection is really much more frequent but of so atypical or benign a character that it is not even suggested, is a question. Difference in susceptibility might be suggested as a reason for the selection, but such an hypothesis is not well supported. The very great variation in pathogenicity and virulence which is known to exist among strains of Br. abortus may be a factor. It is possible, too, that hogs, and possibly pork, may be a source for human infection. Much data must be collected to give a clearer picture of the clinical as well as epidemiological aspects of this disease. For that reason a rather complete case history and record of investigation should be sent to the laboratory with every specimen of blood.

Results already indicate that one negative report does not exclude Br. abortus as the infecting organism. In some cases agglutinins develop slowly and later specimens will give positive results where previous ones were negative. A negative blood culture, too, has little significance as positive blood cultures are obtained with some difficulty.

Strict personal hygiene on the part of people who care for cattle and hogs, and the use of only pasteurized milk and properly cooked meats on the part of the general populace are the control measures by which Br. abortus infection may be avoided.

TYPHOID FEVER

ALTHOUGH the incidence of typhoid fever throughout Canada is only a small part of what it was twenty years ago, typhoid, nevertheless, remains an important problem. This is well demonstrated by the account of the epidemic in St. Leonard, New Brunswick, appearing in the Journal of the American Medical Association of September 15th.

St. Leonard is a town of 1,200-1,500 population, situated on the New Brunswick-Maine border on the St. John River across from the town of Van Buren, Maine. From late November 1927 to the middle of January 1928, nearly 200 cases of typhoid occurred in St. Leonard. The explosive character of the epidemic led very quickly to a thorough investigation of the water supply and milk supply. The findings were briefly as follows:

The town supply was taken from Big Brook, a tributary of the St. John. Just below the intake and as part of the water supply system was a dam. A 12" main delivered to a stand pipe from which the town was supplied.

Investigation showed that on a farm about $\frac{1}{2}$ mile above the intake 5 cases of typhoid occurred in August and September. As no physician had been in attendance, these cases were not reported. (These people, for some unknown reason, had used highly polluted water from the St. John River.). There was no disinfection of the excreta and as the home and

outbuildings were on ground sloping steeply to Big Brook, there is good evidence that the excreta were washed quickly into Big Brook during heavy November rains. In November, when the investigation was in progress, the water was found to show high pollution.

One milk vendor located in St. Leonard and supplying milk to about 30 customers, obtained all his water directly from Big Brook some distance below the intake drain. This man and his wife became ill with typhoid on December 2nd; a neighbor, with the same water supply also contracted typhoid about the same time.

The epidemic *was controlled* by—

(1) Immediately advising the boiling of all water.

(2) Discontinuing the milk supply from the infected household.

(3) Discontinuing the manufacture of certain "soft drinks" in the town. Permanent changes consisted in the installation of chlorinating equipment for the town water.

The epidemic was not confined entirely to St. Leonard. Sixteen cases occurred in Maine, 12 of them being in Van Buren, directly across the river from St. Leonard and connected by an international bridge. The source in all the sixteen cases was traced to St. Leonard, some through visiting St. Leonard, and becoming infected either by contact or by food or water, and some through using the milk from the St. Leonard vendor. The United States authorities placed an embargo on the importation of milk and milk

products from within a radius of 50 miles of St. Leonard.

Several instances of epidemics originating from chronic carriers of typhoid are reviewed in the same article. It is to be noted too that the State of Maine regulations "require at least three successive negative stools and urine for release from observation." The article concludes, "These few selections from our problems in Maine are only additional data as to the need of pasteurization of milk, chlorination of water supplies, careful examination of typhoid convalescents before release from observation, and the need of careful physical examination of food handlers." One might add, the need of efficient supervision of pasteurization and chlorination.

POLIOMYELITIS

THE epidemic of poliomyelitis that has occurred in Manitoba, and to some extent in other provinces, especially British Columbia, has apparently reached its peak and is now on the wane. The reported incidence in Manitoba rapidly rose from 9 in July to 99 in August and 264 in September. In the first week of October, however, but 26 cases were reported and in the week ending October 13th only 14. British Columbia reported 24 cases in August and 51 in September. Later reports from British Columbia are not available. Ontario had only 3 cases in August, 27 in September and 10 in the two weeks ending October 13, 1928.

REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES IN CANADA BY PROVINCES—AUGUST, 1928

Diseases	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
Diphtheria....	16	18	170	238	70	74	86	68
Scarlet Fever..	32	28	243	164	56	60	111	36
Measles.....	—	—	27	87	54	36	17	13
Whooping Cough.....	50	1	35	490	35	24	21	14
German Measles.....	7	—	*	3	*	4	1	—
Mumps.....	—	—	*	169	10	21	15	26
Smallpox.....	—	—	46	31	—	15	9	23
Cerebrospinal Meningitis..	—	1	3	3	—	2	5	4
Anterior Poliomyelitis	—	2	15	27	264	18	35	51
Typhoid Fever	20	28	90	138	18	21	8	6

*Not reportable.

PUBLIC HEALTH NURSING

RUBY M. SIMPSON, REG.N., AND FLORENCE H. M. EMORY, REG.N.

A SHORT COURSE IN THE MENTAL HYGIENE OF CHILDHOOD

THREE years ago, the Laura Spelman Rockefeller Memorial granted a sum of money for the establishment of two laboratory nursery schools—one at McGill University, Montreal, and the other at the University of Toronto. The Toronto school, the St. George's School for Child Study, was opened in January, 1926, and from June 4-15, 1928, with the co-operation of the teaching staff of the University, the Division of Research of the Canadian National Committee for Mental Hygiene, and others interested, arranged with Dr. Hastings, the Medical Officer of Health of Toronto, to present to a group of nurses and social workers of the Department of Public Health, the first formal course of lectures offered by the school. The students were chosen more particularly on the basis of special interest and the work they were doing in their own field relative to child training or mental hygiene. In an introductory talk given by Dr. Bott, who directed the course, it was made clear that the work undertaken was in no way to be considered as a preparation for child training or mental hygiene work; the students were simply being given a glimpse into the research work and activities of the school.

The programme was most attractive and stimulating. The first period each morning was given to a discussion of one of a series of topics which had been used for discussion classes with parents. The remaining

time until 3 p.m. was used for observation of the activities of the school, discussion with the workers concerned, and assigned reading. Observation periods included seeing the children outdoors at free play, indoors at supervised play, in their workshop, at luncheon, and during their afternoon sleep period. For this purpose the group of seventeen students was divided into smaller groups of three or four, and the observation period was followed by a conference with the school worker about the behaviour noticed, its significance, and the guidance which had been given. The reading, arranged by the school workers, was selected from books and articles by outstanding writers upon psychology and child training. The student was required to make abstracts of her readings. From 3 to 4 p.m. lectures were given by authorities upon such subjects as—The Use of Statistics, Psychological Tests, Significance of Heredity in Education, and Problems with Children from the Paediatrician's angle. From 4 to 4.15 p.m. tea was served, after which round-table discussions were held. The day the course ended the students attended the closing exercises of the school.

The final feature of the course was a questionnaire, answered by each member of the group. The questions were:

1. What, in your opinion, was the dominant note of the course?

2. What aspects of the course appealed to you most?

3. What aspects were least useful to you in your particular work?

In this brief article it has been possible to give merely an outline of the course. Its influence upon the student and her work should tend to a better understanding of the problems she meets, and to closer co-operation with the workers in this special field.

Ethel Scholey.

A NEW COURSE FOR GRADUATE NURSES

WITH the opening of the session 1928-29, the University of Toronto has undertaken to offer a one-year course designed to prepare graduate nurses for teaching and administrative positions in hospitals. It has been represented to the University that there is, and has been for some years, a great need for a course of this kind in Ontario, and the decision has been made to offer this course as an experiment. If it is found that sufficient nurses wish to avail themselves of this opportunity the course will be continued indefinitely, but the University reserves the right to discontinue it at any time in the future if the enrolment should prove to be inadequate. The course, which opened on September 25th, 1928, is directed by the Department of University Extension working in co-operation with the Department of Public Health Nursing. At its completion a University diploma will be awarded to those who are successful in passing the examinations.

The subjects of instruction include: Teaching in Schools of Nursing; Method in the Teaching of Nursing; Observation and Practice Teaching; Hospital and School Management; Anatomy and Physiology; Bacteriology; Hygiene and Preventive Medicine, and Psychology. Bedside clinics on the management and nursing care of the sick will be given each week throughout the session. Members of the attending staff of the hospital will first discuss the general principles underlying the management and nursing care of the more important clinical conditions treated in Medicine, Surgery, Obstetrics and Gynaecology, Paediatrics, Ophthalmology and Otolaryngology. This will be followed in each case by a bedside demonstration given by a member of the nursing staff of the hospital on the practical nursing of the clinical condition discussed previously.

Miss Gladys Hiscocks, a graduate of St. John's Hospital, Toronto, and of the Administrative Course offered by the School for Nurses, McGill University, has been appointed to develop the course. In addition to experience gained from administrative and teaching posts in hospital schools, Miss Hiscocks spent the past summer in selected hospitals in England and the United States in the study of nursing methods and procedures.

The enrolment in this course is limited to twenty, but, in order to provide a margin of safety, twenty-one applications have been accepted and the enrolment is now closed. Every student in this course is a registered nurse and many have held and are holding important positions

in hospitals in Ontario. The distribution is interesting: Barrie, 1; Brantford, 1; Callander, 1; Fonthill, 1; Haileybury, 1; Hamilton, 1; London, 1; Pembroke, 1; Peterborough, 2; Sault Ste. Marie, 1; St. Mary's, 1; Stratford, 1; Strathroy, 1; Toronto, 5; Australia, 1.

FOOD AND DRUGS

H. M. LANCASTER, B.A.Sc., AND DR. A. R. B. RICHMOND, V.S., B.V.Sc.

"SURFACE TAINT IN BUTTER"

A DEFECT in what is believed to be well-made butter has cropped up during the past few years. The defect consists of an objectionable flavour that is now recognized as of only surface depth. It has, however, caused the trade some concern. The defect was noticed some seven or eight years ago on the Vancouver market, in a consignment of first-grade butter shipped in from a reputable creamery in Alberta. The appearance of this new trouble led the Dairy and Cold Storage Branch of the Department of Agriculture at Ottawa to investigate conditions surrounding creamery butter-making in the hope that remedies or preventives might be discovered.

Surface taint, though new to this country, has given trouble in some other countries, including Denmark, New Zealand and the United States. In all of these countries the matter has been investigated and such information as has been gathered has been of value to the officers who have worked on the subject in this country.

Dr. E. G. Hood, Chief of the Division of Dairy Research, and Mr. A. H. White, Dairy Specialist, officers of the Dairy and Cold Storage Branch, have worked together on the problem and have incorporated their

findings in a new pamphlet numbered "91", entitled *Surface Taint Butter*.

The trouble has evidently cropped up from time to time, and its appearance has been noted in at least five of the provinces. The taint is detected by the butter graders by a distinct flavour and odour that appears to begin about eight or ten days after manufacture. The degree of development appears to depend somewhat on previous storage temperature, more rapid development taking place at temperatures around 40 to 50 degrees Fahrenheit. The investigations that have taken place have been bacteriological and chemical, and some experimental manufacturing has been done to ascertain possible causes that may be under control.

The results of this work have led to the conclusion that its prevention is largely a matter of cleanliness, sterilization of all equipment used in manufacture and packing, accurate neutralization in the case of sour cream, efficient pasteurization and the use of bacteriologically pure water for washing the butter and for rinsing the equipment.

Expressed in other words, the authors of the pamphlet recommend the adoption of every procedure and

precaution which will prevent the entrance of undesirable organisms in the manufacturing process subsequent to efficient pasteurization.

IODINE IN COW'S MILK

DURING the past two or three years, a considerable amount of work has been carried out in Scotland on the question of the iodine content of cows' milk. Leitch and Henderson at the Rowett Research Institute in Aberdeen have shown that the milk of normal cows contains iodine in the order of 1/100 milligrams per 100 cc. In a more recent paper from the same source, Magee and Glennie have reported a study of the distribution of iodine in milk. According to these workers, iodine is present in both cream and separated milk—the con-

centration in the former being slightly higher than in the latter. In separated milk the iodine is present partly in diffusible form and partly bound up with organic colloids. Further, Magee and Glennie have shown that when milk is heated there may be a loss, due to volatilization, of 20 per cent or more of the total iodine present.

These results may quite well have a bearing on the problem of infant feeding, since small amounts of iodine are no doubt essential for normal thyroid development. The work which has been done up to the present suggests the desirability of extended surveys on the question of the iodine content of the milk of cows in different localities. It is quite likely that the concentration of iodine in cows' milk is dependent on the iodine content of the food supply of the animals.

CORRESPONDENCE

JACK vs. CRANSTON

A medical officer of health loses a suit for damages brought by a person quarantined as a smallpox contact

To the Editor:

This action, tried before Mr. Justice McEvoy at Ottawa last June, was one in which the plaintiff, a florist in Arnprior, Ontario, sued the local medical officer of health for damages because he (the plaintiff) had been quarantined as a contact for 28 days while smallpox existed in his house, in consequence of which he lost his stock of flowers and current business. Judgment was given against the medical officer of health for \$250 and County Court costs.

The result if sustained by an appeal, which, it is understood will be taken, is a serious one not only for municipalities and for medical officers of health, but also for the interest of public health itself. As a rule (as in this case), the defence and the results of such actions are assumed by the municipalities involved. The danger of financial loss in this way will have a tendency to deter municipalities from shouldering the defence in such cases and medical men will be reluctant to assume the responsi-

bilities of a medical officer's position at the meagre salaries paid at present.

But the most important point is the danger to communities likely to result if, through fear of action for damages, the medical officer of health relaxes his vigilence and disease such as smallpox is allowed to spread.

The evidence in this case showed that the house and business premises of the plaintiff were practically under one roof. The plaintiff being a florist, the medical officer of health in his evidence said that, being desirous of interfering as little as possible with the business of the plaintiff, he suggested that the latter be vaccinated and that he live in a part of the house secluded from his family, or in his garage, or that the boy ill of smallpox be isolated in the latter building which was adjacent to the house. The plaintiff on his part claimed that these proposals were his, that the medical officer of health failed to allow any concession of the kind, and that he was placed in quarantine and his stock of plants was lost.

It was claimed by the plaintiff and to some extent established by evidence that in other cases of communicable disease the persons in-

volved had been more leniently treated than he, but there was no evidence that the community suffered from any extension of such infection because of the alleged leniency.

The primary duty of the medical officer of health is to protect his community against the spread of communicable disease. In the case under consideration the evidence showed that the medical officer of health took care to protect the community. Moreover, from his evidence the medical officer of health appears to have offered the plaintiff every reasonable concession within the law. That he may have treated other persons with greater leniency was, it appears, done under circumstances which made such procedure quite safe in so far as the locality was concerned.

The writer has invariably urged upon medical officers of health and local authorities that in dealing with cases of communicable disease the only safe plan is to adhere to the Regulations governing such afflictions and to treat all parties alike.

The case should be appealed and carried, if necessary, to the court of final resort.

J. W. S. McCullough.

"We are apt to think of science as concerned only with the microscope, the test tube and the chemical balance. It is my urgent desire to impress upon both laymen and professional health workers that some of the most valuable truths of sanitary science have been discovered in the field, at the bedside, or at the desk of the statistician. Great as are the contributions of the laboratory, they must all be checked by observations on human beings. There is the greatest need for scientific investigation by health officers and field workers. Such studies have borne splendid fruit in the past and will do so in the future."

Chas. V. Chapin, "Science and Public Health".

NEWS AND COMMENTS

P. A. T. SNEATH, M.B., D.P.H.

ADVANCE news indicates that the 17th Annual Meeting of the Canadian Public Health Association was quite the most successful and enthusiastic meeting in its history. Some 150 delegates were in attendance from seven provinces. The delegates were tendered a reception by His Honour, the Lieutenant-Governor of Manitoba, and entertained at luncheon by the Mayor and City Council of Winnipeg. The Honourable Dr. Montgomery, Minister of Health and Public Welfare of Manitoba, and the Honourable Dr. Forbes Godfrey, Minister of Health and Labour in the Ontario Government, as well as Alderman Hunt, Chairman of the Board of Health of the city of Toronto, honoured the Association with their presence.

The following officers were elected: Honorary President, Hon. Dr. W. E. Montgomery, Minister of Health and Public Welfare of Manitoba; President, Dr. N. MacLeod Harris, Chief of Laboratories, of the Department of Pensions and National Health, Ottawa; Vice-presidents, Dr. A. Lessard, Director of the Bureau of Health, Quebec, Dr. A. J. Douglas, Medical Officer of Health, Winnipeg, and Dr. Wm. Warwick, District Medical Health Officer, St. John, N.B. Dr. J. T. Phair of the Department of Health, Ontario, was re-elected as General Secretary and Dr. G. P. Jackson of the Toronto Department of Health as Treasurer.

The time and place of next year's meeting rests in the hands of the

Executive Council. However, it is to be noted that an invitation was extended from Montreal that it should be held there.

SURVEY REPORT

THE Health Survey of the City of Montreal, suggested by the Montreal Anti-tuberculosis and General Health League, sponsored by a representative committee of citizens and carried out by the League with the co-operation of the field staff of the Committee on Administrative Practice of the American Public Health Association, has been completed and the report, covering every phase of health activity in Montreal, presented to the committee sponsoring the survey. Recommendations for improvement have been made which will involve the per capita expenditure on public health of 91 cents. The report has been enthusiastically received and already plans are under way to put into effect improvements suggested. A detailed review of the report will appear in later issues of the Journal.

CONFERENCE ON TUBERCULOSIS

THE fourteenth annual conference of the National Association for the Prevention of Tuberculosis was held at the British Medical Association House in London, on the 15th and 16th of October, with Sir Arthur Stanley in the chair. The first day was given over to the subject of "The Occurrence of Tuberculosis Among

"Primitive Peoples", the discussion being led by Dr. R. G. Ferguson, Fort Qu'Appelle, Sask., Dr. Vassal of the Pasteur Institute, Nha-Trang, Annam, and Professor S. L. Cummins of the Welsh National School of Medicine. The second day's subject, "Principles Underlying a Scheme of Anti-tuberculosis Measures in Any Country", was introduced by Sir Robert W. Philp, Edinburgh, Dr. J. H. Holbrook of Hamilton, Ontario, and Dr. G. L. Cox of Lancashire, discussing it.

The Ninth Conference of the International Association of Street Sanitation Officials was held in Toronto on October 8th and 9th, with 153 delegates in attendance. Many interesting practical points dealing with the disposal of garbage and street wastes were brought out in the papers and resulting discussion.

QUEBEC

DR. Alphonse Lessard, Director of the Provincial Bureau of Health, who is in attendance at the International Tuberculosis Conference in Rome, Italy, is expected to return to Quebec in the latter part of November.

The Provincial Bureau of Health with the aid of the Rockefeller Foundation are undertaking the public health training of physicians who are to be placed in charge of the county health units in the province. This year three physicians have been awarded fellowships, tenable for one year, by the Rockefeller Foundation. Dr. J. Charles Beaudet is attending the School of Hygiene in the University of Toronto, and Drs. A. Roger Foley and J. Gregoire are attending

the School of Hygiene of John Hopkins University in Baltimore. It is the intention of the provincial authorities to continue this scheme of training of the future directors of county health units.

This province is proud of its establishment of county health units. Five such units have been operating for some time, namely the counties of Beauce, St. John, Temiscouata and the combined counties of Ste. Hyacinthe and Rouville, and St. John and Iberville. Two new units, Nicolet County and Joliette County, have recently been added to this list. These seven county units, covering nine counties, represent a population of some 211,000. Plans are now nearing completion for the addition of three more units, which will raise the population under the county-unit supervision to a total of 345,000. This will include the county of Chicoutimi, which is the largest rural industrial area of the province, and the combined counties of Chateauguay and Terrebonne, and L'Assumption and Montcalm.

The embargo placed on milk and milk products from Montreal and its immediate vicinity by the United States Department of Agriculture early in 1927, following the outbreak of typhoid fever in that vicinity, has been lifted as from August 31st last.

ONTARIO

THE following physicians are registered at the School of Hygiene, University of Toronto, in the course leading to the Diploma in Public Health: Dr. F. S. Burke, Toronto; Dr. J. C. Beaudet, Deschaillons,

Lotbinière Co., Quebec; Dr R. P. Hardman, Toronto; Dr. F. W. Jackson, Wawanesa, Man.; Dr. R. B. Jenkins, Edmonton, Alta.; Dr. F. S. Leeder, Regina, Sask.; Dr. W. A. McClelland, Toronto; Dr. W. B. McClure, Kongmoon, South China; Dr. J. W. McIntosh, Burnaby, B.C.; Dr. Eva Mader, Halifax, N.S.; Dr. G. L. Sparks, Port Arthur.

MANITOBA

DR. D. A. Stewart of the Ninette Sanitarium is in attendance at the International Tuberculosis Conference in Rome, where he is presenting a paper on the tuberculosis problem as it exists in rural communities.

Dr. F. W. Jackson who has been acting as Medical Officer for the Welfare Supervision Board in the Hospital Survey, has been awarded a Connaught Laboratories Fellowship at the School of Hygiene, University of Toronto, and is now in attendance there.

Miss E. A. Russell, Director of Public Health Nursing in the Provincial Department of Health and Public Welfare, and Mr. Alex. Officer, Sanitary Inspector of the Winnipeg Department of Health, were present at the Sanitary Inspectors' Convention at Vancouver, B.C.

It is expected that final report of the survey which has been made by the Welfare Supervision Board at the request of the Minister of Health and Public Welfare, will be published early in December.

The Manitoba Association of Graduate Nurses gave a luncheon in honour of Miss Anne M. Goodrich, Dean of Nursing at Yale University

and Miss M. F. Roberts, Editor of the American Journal of Nursing, who spent a day in Winnipeg en route to the Pacific Coast. Miss Goodrich is filling a series of engagements at the coast, and Miss Roberts is on tour in the interests of the forthcoming International Congress of Nurses, which is to be held at Montreal, Quebec, in July 1929.

ALBERTA

DR. M. R. Bow, Deputy Minister of Health, attended the meeting of the Association in Winnipeg, in October, and read a paper on "Some Unsolved Problems in Preventive Medicine".

BRITISH COLUMBIA

MISS M. F. Gray, Assistant Professor of Nursing at the University of British Columbia, has been conducting a survey of Hospitals and Nurses' Training Schools for the Health and Hospitals Survey Committee of the Welfare Supervision Board of the Province of Manitoba.

On the first of January next, the suburbs of Point Grey and South Vancouver are to be annexed to the city of Vancouver. This will increase the administrative area by about four times that of the present and will raise Vancouver to the status of being the third city of the Dominion with a population of approximately 344,000.

Dr. H. E. Young, Provincial Health Officer, attended the annual meeting of the Association in Winnipeg, where he delivered a paper on "British Columbia's Full-time Health Units".

OBITUARY

DOUGLAS B. KENNEDY

ON Tuesday, September 25th, 1928, in Toronto General Hospital, D. B. Kennedy, M.D., D.P.H., M.C., passed away.

Dr. Kennedy was born in Pembroke, Ont., and after attending public and high school there, entered Queen's University, from which he graduated in Medicine in 1902. He served for a year as house-man in the Water Street Hospital, Ottawa, and was then appointed Ship's Surgeon to the Elder-Dempster Line, operating on the West Coast of Africa. Returning to Canada in 1907, he engaged as physician in construction work for Messrs. Foley, Welsh and Stewart at Abitibi Crossing, during the construction of the Grand Trunk Pacific Railway. In 1913, he became a member of the staff of the Rotunda Hospital at Belfast, returning to Canada in the spring of 1914.

In November 1914, he was gazetted Lieutenant Supernumerary, Army Medical Corps, later being attached to the Sixth Field Ambulance, C.A.M.C., and proceeding to France as Temporary Captain in September 1915. He was mentioned in despatches several times for special gallantry under fire and was awarded the Military Cross, July 18th, 1917. In July 1918, he was appointed Temporary Major and was demobilized in April 1919.

Immediately after demobilization, Dr. Kennedy was appointed medical officer of the Nipigon Development, Hydro Electric Power Commission of Ontario. During the lull in the construction work he was for a time on the staff of the Hamilton Sanitarium.

He attended the University of Toronto for the term 1922-23, receiving the Diploma of Public Health. After serving for a year as bacteriologist in the Department of Health, Ontario, he returned to construction work as a member of the medical staff on construction of the Welland Canal. Early in 1926 he re-engaged with the Hydro Electric Power Commission of Ontario as medical officer, first on the construction of further plant at Nipigon and later in special work in Toronto.

Camp life as a boy on the upper Ottawa; on the senior hockey team on tour for Queen's; house-man in an Ottawa hospital; giving medical attention to an African explorer on a West Coast boat; operating on an Indian in the Northern Ontario bush with most primitive equipment; operating on a Canadian soldier in a captured German hospital with French assistants; acting as doctor and nurse during an influenza epidemic in a remote construction camp; the quiet fisherman on a trout stream; a laboratory man intent on careful investigation; such are glimpses of his varied and useful career, which his friends cherish, but above all he was a quiet, sincere and true man.

In the passing of Dr. Kennedy the profession lost a brilliant diagnostician and an able industrial physician; the construction men, a kind and efficient friend who understood them whether native or foreign; and the growing youth, a sympathetic listener. "His life was an inspiration and his memory is a benediction."

WILLS MACLACHLAN.

BOOK REVIEWS

D. T. FRASER, B.A., M.B., D.P.H. and R. R. McCLENAHAN, B.A., M.B., D.P.H.

The Surgical Operations on President Cleveland in 1893, together with Six Additional Papers of Reminiscences — By William W. Keen, M.D. J. B. Lippincott Company, Philadelphia and London, 1928. \$1.50.

This work of the Dean of American Surgery, a veteran of the Civil War and the World War, now in his 93rd year, (a copy of which we owe to his close friendship with the President of the Canadian Social Hygiene Council), is worthy of even his high reputation.

The first paper on the Surgical Operations on Grover Cleveland in 1893 is interesting to the surgeon, describing as it does two operations on him, involving the excision of practically the entire left upper jaw.

It is, however, some of the other Papers which are of special interest to The Public Health Journal.

One paper is on Louis Pasteur; and, as was to be expected from the protagonist of bacteriology and the target for the darts of all who call themselves "anti-vivisectionists" in the United States—we have the pest in Canada—the paper is most appreciative. In the field of public health, in addition to his having given the *coup de grace* to spontaneous generation in France as Lister in England, Pasteur discovered the *vera causa* of puerperal fever. In 1856 in the Paris Maternité, 64 out of 347 mothers died; in 1864, 364 out of 1,300 cases, the hospital was closed and the survivors taken to

another hospital, where they nearly all died. In all other countries of Europe and in America, sometimes over fifty per cent of the mothers succumbed. Now in a single instance in 8,373 consecutive cases, not one mother lost her life from puerperal fever. In Dr. Keen's 'prentice days—he graduated from Jefferson College, Philadelphia, in 1862—in over 8,000 cases more than 400 mothers would have died; and if a so-called "epidemic" prevailed, over 4,000 would probably have perished.

Passing over Pasteur's other victories we come to hydrophobia. Although the true cause of this disease is as unknown to us as it was to Galen and Dioscorides, he devised an antidote which has almost abolished death from attacks by rabid animals.

Appendicitis had not come to its own—it was "perityphlitis" (it will be remembered that it was "perityphlitis" which nearly carried off King Edward VII), "local peritonitis", "abscess in the right iliac fossa"; "ileus" seems to have been forgotten along with "the iliac passion": and "before the days of Lister, death from inflammation was almost always the result of any operation in these three cavities . . . the head, the chest and the abdomen on which were writ large, 'Hands Off'."

Nothing was known of the "Schick test", and diphtheria took a heavy toll of child life. Before 1895, he had often stood, knife in hand, awaiting the decision of the agonized parents

of a child attacked by "membranous croup", not only he but they knowing, he from "only too frequent dread experience", they from being told, "that grim death was waiting his almost certain victim" even if he did operate. Now tracheotomy for diphtheria has become practically unknown.

The only cleansing before an operation or an accouplement was then washing the hands, and not always that; "disinfection" was an *unknown word* in the language of surgery in the 60's. Secondary hemorrhage, erysipelas, gangrene, blood poisoning, were to be expected, and "laudable pus" was rather welcomed. Under the best treatment, 90 per cent of tetanus patients died, and 97.4 per cent of blood poisoning.

In his student days, practically every hospital patient had alcoholic drinks—now not one in a hundred. Of the medical supply wagons, 34 in number, sent to the Northern Army of the Second Battle of Bull Run, were wholly or in part loaded with alcoholic liquor.

The above are only samples of the treasures in this notable book, the writer of which does not need to "pray for courage to be old".

This reviewer knows of no more effective protective against the pestilent teachings of those who set themselves against the prophylactics of modern science under the name of "anti-vivisectionists" and the like, who speak of vaccination as "pouring animal syphilis into human beings" and would fain debar humanity from assured preventives of disease just as their predecessors did in the time of Jenner and later.

Dr. Keen deserves well of all interested in the health of the people—and who is not?

W. R. Riddell.

The Healers—By B. Liber. Published by Rational Living, New York, 1928. 454 pages. Price \$3.00.

This book, under the guise of a novel, bitterly attacks all classes of "Healers", with especial interest on the medical profession. The author attacks particularly the specialist, such as the surgeon, the nose and throat specialist, the lodge practice physician and others. He is even unable to say much in favour of the general practitioner.

The author does not appear to believe in certain methods of treatment that are agreed upon by practically all medical men. As examples of this the author believes that sanitation is of more value than vaccination in smallpox. He is not fully convinced of the value of antitoxin in the treatment of diphtheria and has little use for such methods of prevention as toxin-antitoxin in diphtheria, or tetanus or typhoid vaccine in the prevention of tetanus or typhoid fever.

If one is able to read through this attack on the medical profession one will find somewhat similar attacks on various sects and forms of irregular healers. The book would not appear to be one which would be any help to the general public.

The book is printed on rather poor paper, and errors in spelling and transposed letters in words are more common than they should be.

R. R. McClenahan.

CURRENT HEALTH LITERATURE

D. T. FRASER, B.A., M.B., D.P.H,

The Permanence of the Schick Negative State — Two groups of children are considered—533 who were negative to the original Schick test one to seven years previously and 440 who were positive to the original Schick test and became negative only after injections of immunizing mixtures to confer active immunity to diphtheria. 98.9 per cent of the first group (originally negative) were read as negative on retest. Ninety-five percent of the second group (originally positive, subsequently actively immunized) were negative on retest. Only two children (0.4 percent) of the first group who had become positive required injections of immunizing material. All the others became negative due to the secondary stimulus of the minute amount of toxin contained in the skin-test dose. Similarly all but two of those in the second group who had become positive after active immunization responded to the stimulus of the Schick test and thereby were rendered immune. In both these groups nearly all the relapsed Schick-positive individuals rapidly produced circulating antitoxin in response to very small amounts of diphtheria toxin, and could be considered in a state of active immunity.

PARISH, H. J. and OKELL, C. C. Lancet, Aug. 18, 1928.

The Significance of the Age Distribution of Poliomyelitis — The author concludes that an analysis of his data supports the hypothesis that the virus of poliomyelitis attains a distribution equal to that of measles

and diphtheria, in the course of which the majority of persons become immunized either subclinically or through unrecognized attacks of the disease.

AYCOCK, W. LLOYD. American Journal of Hygiene, Vol. VII, No. 1, Jan. 1928.

The Development of Industrial Hygiene in Canada — The growth of the idea of the application of methods of prevention of sickness as well as accidents in industry is slow but definite. Very important contributions to the study and control of occupational diseases have been made in Canada. Legislation is reviewed.

HUTTON, R. M. The Journal of Industrial Hygiene, Vol. X, No. 8, Oct. 1928.

Infection, Immunity and Disease in the Epidemiology of Diphtheria — In a careful analysis of the data available, certain conclusions seem justifiable. The number of carriers of virulent diphtheria bacilli in an urban population to that of clinical cases of diphtheria is as 40 or 50 to 1. The rates of those immunized by becoming or being carriers to those manifesting clinical diphtheria is as 6 or 8 to 1. This conclusion is in harmony with the fact that individuals can and do become immunized to diphtheria without manifesting clinical symptoms of the disease. The author qualifies his conclusions in that other studies in different regions involving different races, climatic conditions and even different seasons may show different results. The question of variation in malignancy of diphtheria is discussed.

FROST, W. H. Journal of Preventive Medicine, Vol. II, No. 4.

